

### **REMARKS**

Claims 1 through 20 are pending in this application. Claim 3 is amended in several particulars for purposes of clarity in accordance with current Office policy, to assist the examiner and to expedite compact prosecution of this application. The Applicant appreciates the Examiner's indication of allowability concerning claim 3.

#### **I. Election Restriction**

The Examiner argues that satisfaction of undue burden is satisfied according to MPEP §808.02(A) because of the separate classification and because the inventions are distinct.

As specifically stated in MPEP § 803, the examiner must show that the (A) The inventions must be independent (see MEP § 802.01, § 806.04, § 808.01) or distinct as claimed (see MPEP §806.05 - §806.05(i)); **and** (B) There must be a **serious burden** on the examiner if restriction is required (see MPEP §803.02, § 806.04(a) -§806.04(i),§808.01(a), and § 808.02). Therefore, the distinctness and burden are separate criterions. Therefore, the only point that was made concerning the undue burden is that is a separate classification. A separate classification in itself does make for a "serious" burden. The Examiner has not proven a *prima facie* case of an "serious" burden and therefore, all the claims should be examined. The level of "serious" is much higher than simply showing a burden.

Further, there are limitations in common in each of the groups as seen in claims 1 through 20. For example, the limitations of claim 1 from group I are in claim 10 from group II. For example, the base metal and the electron emissive layer with the limitation of the surface roughness

of the electron emissive layer to be less than or equal to 8 microns are in claim 10 from group II and in claim 1 which is from group I and so not a serious burden.

There are some overlapping fields of search within the different groups and therefore no serious burden.

Furthermore, originally filed claims 7 through 10 which have the features of group II are dependent on claim 1 which has the features of group I. No serious burden should therefore exist for these claims.

## **II. CLAIM REJECTIONS - 35 U.S.C. § 102**

Claims 1, 2, 4 through 6 were rejected under 35 U.S.C. §102(b).

No claim is anticipated under 35 U.S.C. §102 (b) unless all of the elements are found in exactly the same situation and united in the same way in a single prior art reference. As mentioned in the **MPEP §2131**, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Every element must be literally present, arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (CAFC 1989). The identical invention must be shown in as complete detail as is contained in the patent claim. *Id.*, "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 165

USPQ 494, 496 (CCPA 1970), and MPEP 2143.03.

**A. Claims 1, 2, 5 and 6 were rejected under 35 U.S.C. §102(b) as being anticipated by Derfler et al. (U.S. Patent 4,559,281). The Applicant respectfully traverses.**

Regarding claims 1-2, the Examiner stated that Derfler teaches a cathode comprising a base metal 10 and an electron emissive material layer 12 attached on the base metal 10 (Fig. 1). The electron emissive material layer 12 includes a surface roughness measured from a distance between a highest point and a lower point of the surface of the electron emissive material layer of less than 5 microns. Derfler teaches that  $t$  is the thickness of the rough layer (col. 3, line 6). Derfler later says that it is preferred that  $t = 1.5\text{-}3$  microns (col. 6, lines 40-61). If the rough layer is less than 5 microns then the difference between the highest point and the lowest point of the rough layer is positively less than 5 microns.

First, Derfler on figure 1 and col. 6, lines 40-41 discloses the *mean* depth of 1.5 to 3 microns. Derfler does not disclose the surface roughness being controlled to be less than or equal to 8 microns in claim 1 and less than or equal to 5 microns in claim 2. Mean depth can still allow for roughness of greater than 8 or 5 microns. As mentioned above, every element must be literally present, arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (CAFC 1989). Here, this is not the case.

Regarding claim 5, the Examiner states that the electron emissive material layer is attached

to the base metal by deposition (col. 4, lines 33-44). Furthermore, the Examiner notes that the claim limitation that "the electron emissive material layer being attached on said base metal by one method selected from the group consisting essentially of printing and deposition" is drawing to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, the Examiner stated that absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

However, according to MPEP §2113:

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "inter-bonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.)

Therefore in claim 5, printing and deposition should be taken into account especially since the process steps imply a structure according to MPEP §2113. The reference does not disclose such a limitation.

Regarding claim 6, the Examiner notes that the claim limitation that "the electron emissive material layer being attached to said base metal by a screen printing method" is drawn to a process of manufacturing which is incidental to the claimed apparatus. The

Examiner again states that it is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation.

Again as shown above, the process steps imply a structure according to MPEP §2113. Therefore, screen printing method must be taken into account since it imparts a structural limitation. The reference does not disclose such a limitation.

**B. Claims 1, 2, 4 through 6 were rejected under 35 U.S.C. §102(b) as being anticipated by Yamauchi et al. (U.S. Patent 6,351,061). The Applicant respectfully traverses.**

Regarding claims 1-2, the Examiner stated that Yamauchi teaches that the electron emissive material layer 3 includes a surface roughness measured from a distance between a highest point and a lower point of the surface of the electron emissive material layer being at most 15 microns (col. 5, lines 15-19). The Examiner explains that this range includes the range of less than or equal to 5 microns. The Examiner further states that Yamauchi further teaches that if the difference between the highest and lowest point is 10 microns or less that an even better current density distribution can be obtained (col. 5, lines 20-22).

However, if there are overlapping ranges, then one must look to MPEP §2131.03 under the section for anticipation of overlapping ranges. In the section of MPEP §2131.03 states that “When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are

disclosed, a case by case determination must be made as to anticipation.” Therefore, since there may be a disclosure of an overlapping range, but since Yamauchi does not disclose a “specific” example falling within the range, a case by case basis must be made. Specific example in MPEP §2131 means for example “point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni and this composition was within the claimed range of compositions).” Clearly no “specific example as explained in the MPEP above is shown in Yamauchi.

The MPEP §2131.03 further states “If the claims are directed to a narrow range, the reference teaches a broad range, and there is *evidence of unexpected results* within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with “sufficient specificity” to constitute an anticipation of the claims.” In the present invention, the *criticalness* of a surface roughness less than or equal to 8 microns and 5 microns is shown throughout the specification. Unexpected results on their own do not negate anticipation according to MPEP§2131.04, but it was taken into account for figuring out “sufficient specificity.” Yamauchi, therefore, does not anticipate the present invention.

Regarding claims 5 and 6, the Examiner as seen for Derfler, does not take into account the language in claims 5 and 6. As shown above in claim 5, printing and deposition should be taken into account especially since the process steps imply a structure according to MPEP §2113. The reference of Yamauchi does not disclose such

a limitation.

Concerning claim 6, again as shown above, the process steps imply a structure according to MPEP §2113. Therefore, screen printing method must be taken into account since it imparts a structural limitation. The reference of Yamauchi does not disclose such a limitation.

### **III. ALLOWABLE SUBJECT MATTER**

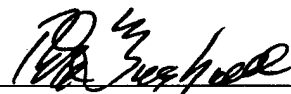
The examiner stated that claim 3 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Following the advice of the examiner, claim 3 was rewritten in independent form including all of the limitation of the base claim and any intervening claims. Therefore, claim 3 should be allowable.

In view of the foregoing amendments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. If there are any questions, the examiner is asked to contact the applicant's attorney.

A fee of \$84.00 is incurred by the addition of one (1) independent claim in excess

of three (3). Should there be a deficiency in payment, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

Respectfully submitted,



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Date: 31 July 2003  
I.D.: REB/SS